

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION
(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
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in its capacity as elected Office

Date of mailing (day/month/year) 13 December 1999 (13.12.99)	
International application No. PCT/AU99/00434	Applicant's or agent's file reference
International filing date (day/month/year) 04 June 1999 (04.06.99)	Priority date (day/month/year) 04 June 1998 (04.06.98)
Applicant CARROLL, Bernard, John	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:
30 November 1999 (30.11.99)

in a notice effecting later election filed with the International Bureau on:

2. The election was
 was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Juan Cruz Telephone No.: (41-22) 338.83.38
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2185446	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/AU99/00434	International filing date (day/month/year) 4 June 1999	Priority Date (day/month/year) 4 June 1998
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ C12N 9/32, 15/29, 15/55, 15/67		
Applicant THE UNIVERSITY OF QUEENSLAND et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.																
2. This REPORT consists of a total of 4 sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheet(s).																
3. This report contains indications relating to the following items: <table> <tr> <td>I</td> <td><input checked="" type="checkbox"/> Basis of the report</td> </tr> <tr> <td>II</td> <td><input type="checkbox"/> Priority</td> </tr> <tr> <td>III</td> <td><input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td>IV</td> <td><input type="checkbox"/> Lack of unity of invention</td> </tr> <tr> <td>V</td> <td><input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td>VI</td> <td><input checked="" type="checkbox"/> Certain documents cited</td> </tr> <tr> <td>VII</td> <td><input type="checkbox"/> Certain defects in the international application</td> </tr> <tr> <td>VIII</td> <td><input type="checkbox"/> Certain observations on the international application</td> </tr> </table>	I	<input checked="" type="checkbox"/> Basis of the report	II	<input type="checkbox"/> Priority	III	<input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	IV	<input type="checkbox"/> Lack of unity of invention	V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	VI	<input checked="" type="checkbox"/> Certain documents cited	VII	<input type="checkbox"/> Certain defects in the international application	VIII	<input type="checkbox"/> Certain observations on the international application
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VII	<input type="checkbox"/> Certain defects in the international application															
VIII	<input type="checkbox"/> Certain observations on the international application															

Date of submission of the demand 30 November 1999	Date of completion of the report 10 August 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer PHILIPPA WYRDEMAN Telephone No. (02) 6283 2554



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C12N 9/32, 15/29, 15/55, 15/67		A1	(11) International Publication Number: WO 99/63068 (43) International Publication Date: 9 December 1999 (09.12.99)
(21) International Application Number: PCT/AU99/00434		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 4 June 1999 (04.06.99)		Published <i>With international search report.</i>	
(30) Priority Data: PP 3901 4 June 1998 (04.06.98) AU PP 3903 4 June 1998 (04.06.98) AU PP 6169 25 September 1998 (25.09.98) AU PP 6174 25 September 1998 (25.09.98) AU			
(71) Applicant (<i>for all designated States except US</i>): THE UNIVERSITY OF QUEENSLAND [AU/AU]; St. Lucia, QLD 4067 (AU).			
(72) Inventor; and			
(75) Inventor/Applicant (<i>for US only</i>): CARROLL, Bernard, John [AU/AU]; Unit 2, 1 Bryce Street, Moffat Beach, QLD 4551 (AU).			
(74) Agents: HUGHES, E., John, L. et al.; Davies Collison Cave, 1 Little Collins Street, Melbourne, VIC 3000 (AU).			
(54) Title: PHENOTYPE MODIFYING GENETIC SEQUENCES			
(57) Abstract			
<p>Nucleic acid molecules capable of modifying phenotypic traits in eukaryotic cells and in particular plant cells. The nucleic acid molecules of the present invention are referred to as "phenotype modifying genetic sequences" or "PMGSs" and may be used to increase and/or stabilise or otherwise facilitate expression of nucleotide sequences being expressed into a translation product or may be used to down regulate by, for example, promoting transcript degradation <i>via</i> mechanisms such as co-suppression. The PMGSs may also be used to inhibit, reduce or otherwise down regulate expression of a nucleotide sequence such as a eukaryotic gene, including a pathogen gene, the expression of which, results in an undesired phenotype.</p>			

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Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU 99/00434

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member	
WO	9612813	AU	30750/95	GB 9421292
WO	9842853	AU	65787/98	
WO	9801470	AU	33365/97	EP 909273

END OF ANNEX

I. Basis of the report

1. With regard to the elements of the international application:*

the international application as originally filed.

the description, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of

the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages , received on with the letter of

the drawings, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of

the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:

the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
 the language of publication of the international application (under Rule 48.3(b)).
 the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:

contained in the international application in written form.
 filed together with the international application in computer readable form.
 furnished subsequently to this Authority in written form.
 furnished subsequently to this Authority in computer readable form.
 The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. The amendments have resulted in the cancellation of:

the description, pages
 the claims, Nos.
 the drawings, sheets/fig.

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report**

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 2, 6-8, 10, 18 19	YES
	Claims 1, 3-5, 9, 11-17 & 20	NO
Inventive step (IS)	Claims 2, 6-8, 10, 18 19	YES
	Claims 1, 3-5, 9, 11-17 & 20	NO
Industrial applicability (IA)	Claims 1-20	YES
	Claims None	NO

2. Citations and explanations

Documents are referred to as D1 - D6 in the order in which they appear in the International Search Report.

D1 discloses sequences comprising at least sequences <400> 15, <400> 16, <400> 17, <400> 18 and <400> 23 at least at 25% similarity and in some cases at 100% similarity.

D2 discloses sequences comprising sequence <400> 29.

D3 discloses sequences comprising sequence <400> 26 and 400> 27

D1-D3 thus deprive claim 20 of its novelty.

D4 discloses a promoter from a plant alpha amylase gene and the sequence thereof. This promoter appears to fill the requirements of a phenotype modulating genetic sequence as defined by claims 1, 3-5, 9, 11-17 and 20. Specifically this promoter increases the expression of a second nucleotide sequence (alpha amylase).

D5 discloses sugar regulatory sequences in alpha amylase genes that appear to fill the requirements of a phenotype modulating genetic sequence as defined by claims 1, 3-5, 9, 11-17.

D5 (see certain documents cited box) was not published prior to the priority of the current claims and thus does not at this time form part of the applicable prior art. However, this document will likely become grounds for an objection on whole of contents under Australian national phase examination.

D6 discloses a transcription factor regulating alpha amylase promoter initiated expression. Such a transcription factor falls within the scope of claims 1, 3-5, 9, 11-17.

Claims 1-20 are considered to have industrial applicability.

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO 98/42853	1 October 1998	24 March 1998	24 March 1997

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00434

A. CLASSIFICATION OF SUBJECT MATTER		
Int Cl ⁶ : C12N 9/32, 15/29, 15/55, 15/67,		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) SEE ELECTRONIC DATA BASE BOX BELOW		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched SEE ELECTRONIC DATA BASE BOX BELOW		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Chem Abs, Medline, WPAT: phenotype, modify, stabilise, increase, methylation, regulation. Sequences <400>1 to <400>31 searched in EMBL, Genbank.		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FU, H. and PARK, W. D. (1995) "Sink and Vascular Associated sucrose Synthase Functions Are Encoded by Different Gene Classes in Potato" <i>The Plant Cell</i> vol. 7, pages 1369-1385. See particularly sequence disclosures.	20
X	JOSEFSSON, L. G. et al (1987) "Structure of a Gene Encoding the 1.7S Storage Protein, Napin, from <i>Brassica napus</i> **" <i>The Journal of Biological Chemistry</i> , vol. 262, no. 25, pages 12190-12201. See particularly sequence disclosures.	20
X	COLE, K. P. et al (1992) "Structure of the Gene Encoding Potato Cytosolic Pyruvate Kinase", <i>Gene</i> , vol. 122, pages 255-261. See particularly sequence disclosures.	20
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C		<input type="checkbox"/> See patent family annex
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>		
Date of the actual completion of the international search 13 July 1999	Date of mailing of the international search report - 2 AUG 1999	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929	Authorized officer PHILIPPA WYRDEMAN Telephone No.: (02) 6283 2554	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00434

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/12813 (DANISCO A/S) 2 May 1996. See entire document	1, 3-5, 9, 11-17 & 20
PX	WO 98/42853 (THE REGENTS OF THE UNIVERSITY OF CALIFORNIA) 1 October 1998. See entire document.	1, 3-5, 9, 11-17
X	WO 98/01470 (NOVO NORDISK A/S) 15 January 1998. See abstract in particular.	1, 3-5, 9, 11-17